

CLASSIFICATION OF THE GALL-WASPS AND THE PARASITIC
CYNIPOIDS, OR THE SUPERFAMILY CYNIPOIDEA. I.

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In 1899, the writer separated the Hymenoptera into *ten* superfamilies, viz. — (1) Apoidea, (2) Sphecoidea, (3) Vespoidea, (4) Formicoidea, (5) Proctotrypoidea, (6) Cynipoidea, (7) Chalcidoidea, (8) Ichneumonoidea, (9) Siricoidea, and (10) Tenthredinoidea, and all of these have been classified down to genera, except the Formicoidea and the Cynipoidea.

During the year 1903, in a series of papers in *PSYCHE*, I propose to give my views on the classification of the Cynipoidea, a large, natural group falling in between the Proctotrypoidea and the Chalcidoidea, and still imperfectly known in this country, although well represented in genera and species.

An excellent *résumé* of the various schemes of classification proposed for these insects by Hartig, Giraud, Thomson, Förster, Walsh, and others is given by Cameron in his Monograph of the British phytophagous Hymenoptera, vol. 3, p. 152; also by Kieffer in his Monographie des cynipides d'Europe et d'Algérie, vol. 1, p. 51, so that I shall not repeat them here; they should be read by all interested in these wasps, as they show briefly the great progress made in the study and classification of these obscure insects, and how the *natural groups* have been gradually evolved, until to-day they are firmly established, whether they be called tribes, subfamilies, or families.

Most writers on these insects consider that they represent but a single family, the Cynipidae, with many subfamilies. In my opinion, however, there are at least *two* well-marked families, nearly as first pointed out by Hartig. One of these comprises all the parasitic species; the other, with the exception of a single group, the *Ibaliinae*, comprises the gall-makers and the gall-inhabiting species. The *Ibaliinae* are, however, a peculiar group and may yet be elevated to family rank.

The two families may be recognized by the use of the following table: —

TABLE OF FAMILIES.

Abdominal tergites meeting along the venter and entirely inclosing or concealing the sternites, at most with only a part of the hypopygium exposed.

Family LVIII. — Figitidae.

Abdominal tergites not meeting along the venter; all or nearly all the sternites visible.

Family LIX. — Cynipidae.

Family LVIII. — Figitidae.

This family is a most extensive one and well represented in North America. The species are numerous and all, without a single exception, are parasitic. The majority attack principally the larvae of Diptera; a few, however, prey upon aphides and coccids; others attack the larvae of the lace-winged flies (Hemero-biidae); while others are said to prey upon beetle larvae.

Several well-marked natural minor groups may be recognized, as follows: —

TABLE OF SUBFAMILIES.

- Abdomen ovate, compressed or subcompressed, often longly petiolate, the apex usually pointed 1
- Abdomen short, globose or subglobose, the second segment the longest 5
- 1. Scutellum not cupuliform, of ordinary shape or grooved, spined or cone-shaped, and usually foveate at base 2
 - Scutellum cupuliform, *i. e.*, with a cup-like elevation on its disc 4
- 2. Abdomen longly petiolated, the second segment usually somewhat *longer* than the third 3
 - Abdomen sessile or subsessile, or with a short petiole, the second segment *shorter* than the third.
 - Second abdominal segment *not* prolonged dorsally, as seen from the side, not tongue-shaped. Subfamily I. — Figitinae.
 - Second abdominal segment prolonged dorsally, as seen from the side, tongue-shaped. Subfamily II. — Onychiinae.
- 3. Petiole attached to the metathorax normally, between the hind coxae; fourth dorsal segment not longer than either the second or the third.
 - Subfamily III. — Anacharinae.
 - Petiole attached to the metathorax far above the hind coxae; fourth dorsal segment much longer than either the second or the third.
 - Subfamily IV. — Liopterinae.
- 4. Second abdominal segment always the longest, except in a single case, and usually occupying most of the surface of abdomen; hind tibiae with *two* apical spurs. Subfamily V. — Eucoilinae.
- 5. Scutellum rounded, smooth, convex; hind tibiae with only *one* apical spur.
 - Subfamily VI. — Xystinae = Allotriinae.¹

¹ Allotria Westw. nec. Hübner 1816.

Subfamily I.—Figitinae.

1869. Figitoidae, Familie 7 (*partim*), Förster, Verh. d. zool. bot. gesell. Wien, bd. 19, pp. 329 & 363.

This subfamily is quite distinct from all the other subfamilies here recognized except the Onychiinae with which it agrees in all particulars except in the shape of the second dorsal abdominal segment, the second segment being normal and not produced dorsally, or tongue-shaped, as in the latter group.

The shape of the scutellum easily separates it from the Eucoilinae and the Xystinae (= Allotriinae), while from the Anacharinae and the Liopterinae it is distinguished by the non-petiolate abdomen.

TABLE OF GENERA.

1. Cheeks margined	2
Cheeks immargined	15
2. Eyes bare, <i>not</i> hairy	3
Eyes hairy or pubescent	6
3. Thorax opaque, very finely and thickly punctate, the parapsidal furrows complete	5
Thorax smooth, polished, with distinct parapsidal furrows.	
Marginal cell closed	4
Marginal cell open.	
Second abdominal segment bare at base; scutellum rugulose, bifoveate; ♀ antennae 13-jointed filiform, the third and fourth joints equal.	Trischiza Förster (Type <i>Figites agaricolorum</i> Dahlb.)
4. Second abdominal segment pubescent basally, especially at the sides; scutellum rugose; areolet not close to the base of the marginal cell, ♀ antennae 13-jointed.	
	Sarothrus Hartig (Type <i>S. areolatus</i> Hartig)
Second abdominal segment bare at base; scutellum smooth; areolet close to the base of the marginal cell; ♀ antennae 13-jointed, ♂ 14-jointed, the third joint longer than the fourth.	Melanips Haliday (Type <i>Figites urticeti</i> Dahlb.)
5. Marginal cell closed; ♀ antennae 13-jointed, ♂ 14-jointed, the third joint excised.	Amblynotus Hartig (Type <i>Scytodes granulatus</i> Hartig)

6. Mesopleura *not* separated from the mesosternum by a sharp, longitudinal ridge or carina 7
 Mesopleura separated from the mesosternum by a sharp, longitudinal ridge or carina 10
 7. Scutellum rugulose, *without* an erect horn 8
 Scutellum smooth, polished, *with* a small erect horn posteriorly 9
 8. Second abdominal segment at base bare.

♀ antennae 13-jointed, submoniliform, the joints longer than wide.

Pycnotrichia Förster
 (Type *Figites urticarum* Dahlb.)

Second abdominal segment at base bare.

♀ antennae 13-jointed, submoniliform, the middle joints not longer than wide. Homorus Förster

(Type *Figites abnormis* Giraud.)

9. Marginal cell closed; ♀ antennae 13-jointed. Thyreocera Ashmead
 (Type *Figites laeviscutum* Prov.)

10. Marginal cell completely closed 11
 Marginal cell more or less open along the fore margin 14

11. Scutellum rugose, rounded or obtuse at apex, but never ending in a spine 12
 Scutellum rugose, more or less carinate and ending in a long acute spine the spine sometimes channelled 13

12. Head and thorax coarsely rugose; ♀ antennae 13-jointed, filiform, the joints long, cylindrical, the third *shorter* than the fourth; abdomen compressed, the second segment as long as 3 and 4 united. Kiefferia, gen. nov.¹

(Type *K. rugosa* Ashm.)

Head and thorax smooth, shining; ♀ antennae 13-jointed, subclavate, the joints after the fifth oblong-oval, the third longer than the fourth, ♂ antennae 14-jointed, long, filiform; abdomen not much compressed.

Figites Latreille
 (Type *Cynips scutellaris* Rosse.)

13. ♀ antennae 13-jointed, subclavate, ♂ antennae 14-jointed, filiform, the third joint a little shorter than the fourth Solenaspis Ashmead

(Type *S. hyalinipennis* Ashm.)

14. Scutellum rugose, more or less carinate and ending in a long acute spine, ♀ antennae 13-jointed, subclavate, ♂ antennae 14-jointed filiform.

Solenaspis Ashmead (partim)

Scutellum rugose, bounded by an elevated rim behind which is produced medi-

¹ Named in honor of Abbé J. J. Kieffer, Professor at Bitche, Deutsch-Lothringen.

ally into a short triangular tooth; ♀ antennae 13-jointed, subclavate, moniliform, ♂ antennae 14-jointed, the third joint slightly longer than the fourth or of an equal length Figitodes Ashmead

(Type *Figites quinquelineatus* Say.)

15. Scutellum *without* a fovea at base; head and thorax opaque, finely punctate; ♀ antennae 13-jointed, subclavate, the last joint not especially large, ♂ antennae 14-jointed. Anolytus Förster

(Type *Onychia biusta* Hal.)

Scutellum *with* one large fovea at base; head and thorax smooth, shining; marginal cell small, closed; ♀ antennae 13-jointed, clavate, the last joint much enlarged, oblong, ♂ antennae 14-jointed. Lonchidia Thomson

(Type *Figites maculipennis* Dahlb.)

Subfamily II.—Onychiinae.

1869. Onychioidae, Familie, 6 Förster, Verh. d. zool. bot. gesell. Wien, bd. 19, p. 329.

This group is separated from the Figitinae by the shape of the second dorsal abdominal segment which is produced dorsally or tongue-shaped; otherwise it is identical.

TABLE OF GENERA.

Scutellum <i>not</i> spined.	1
Scutellum ending in a spine	2
1. Mesonotum smooth, polished with two distinct furrows; scutellum smooth, not elevated, bifoveate at base; marginal cell open along the fore margin but not confluent with the costal cell; ♀ antennae 13-jointed, filiform.	
	Homalaspis Giraud
	(Type <i>Omalaspis novica</i> Giraud.)
Mesonotum scabrous, opaque, with two distinct furrows and a median carina, scutellum large, elevated and truncate posteriorly with a channel throughout; marginal cell open at the base and along the fore margin, confluent with the costal cell; ♀ antennae 13-jointed, filiform.	
	<i>Onychia</i> Haliday
	(Type <i>Callaspidia fonscolombeii</i> Dahlb.)
2. Marginal cell open along the fore margin and sometimes at base	3
Marginal cell completely closed	4

3. Mesothorax scabrous and carinate, with two parapsidal furrows; marginal cell open at base and along the fore margin, confluent with the costal cell; ♀ antennae 13-jointed, filiform. *Aspicera* Dahlborn
(Type *Tenthredo scutellata* Villers.)
Mesothorax smooth, shining, not carinate, with two parapsidal furrows; marginal cell closed at base; ♀ antennae 13-jointed, filiform. *Belna* Cameron
(Type *B. nigriceps* Cam.)
4. Mesonotum smooth, shining, with distinct parapsidal furrows; ♀ antennae 13-jointed, subclavate. *Neralsia* Cameron
(Type *N. rufipes* Cam.)

Subfamily III. — Anacharinae.

1869. Megapelmoidea, Familie, 5 Förster, Verh. d. zool. bot. gesell, Wien, bd. 19, p. 329.

This subfamily is easily recognized by the abdomen which is distinctly petiolated and attached normally to the metathorax, the fourth dorsal segment being not longer than either the second or the third.

TABLE OF GENERA.

- Scutellum produced at apex into a long spine 1
Scutellum more or less conical, but never ending in a spine 2
1. Mesonotum rugose, *without* parapsidal furrows; marginal cell long and open along the fore margin; abdominal petiole at least as long as the hind coxae, smooth; ♀ antennae 13-jointed. *Acanthaegilips* Ashmead
(Type *A. brasiliensis* Ashm.)
Mesonotum smoother, with distinct parapsidal furrows, the middle lobe usually more or less rugulose posteriorly; marginal cell shorter and completely closed; abdominal petiole much shorter than the hind coxae . . . *Xyalaspis* Hartig.
(Type *Cynips nitidula* Dalman.)
2. Scutellum separated from the mesonotum by a suture or furrow and *with* two shallow oblique foveae at base 3
Scutellum not separated from the mesonotum by a furrow and *without* foveae at base 4
3. Abdominal petiole shorter than the hind coxae, striate or rugose; middle segment areolated. *Aegilips* Haliday
(Type *Anacharis rufipes* Westw.)